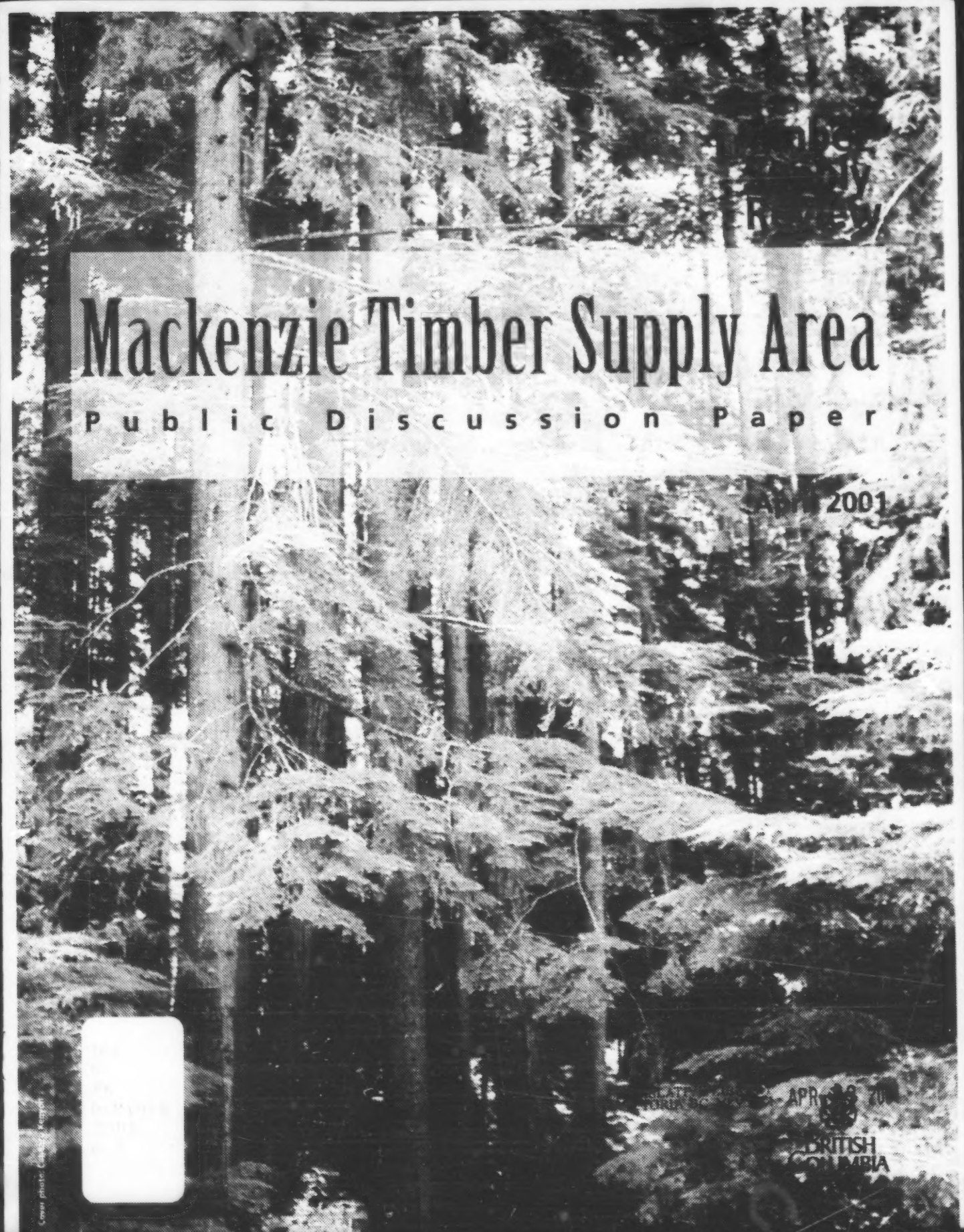

Mackenzie Timber Supply Area

Public Discussion Paper

APRIL 2001

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Introduction

The British Columbia Forest Service is reviewing the timber supply for all timber supply areas (TSAs) and tree farm licences (TFLs) in the province. This review examines the impacts of current forest management practices on the timber supply, economy, environment and social conditions of the local area and the province. Based on this review, the chief forester may, if necessary, adjust the allowable annual cut (AAC) for the Mackenzie TSA.

By law, the chief forester must review and set new AACs for all TSAs and TFLs every five years. The objectives of the Timber Supply Review are:

- to identify relevant current forest management practices and assess their effects on short- and long-term timber supply, and identify related economic, environmental and social factors
- to identify where improved information is required for future timber supply forecasts
- to provide the chief forester with information to use in making AAC determinations that will apply for the next five years

Timber Supply Review in the Mackenzie TSA

The *Mackenzie TSA Data Package* and *Information Report* were released in April 2000. Following the release, the documents were reviewed by licensees, the public and government agencies. The BC Forest Service has now completed the *2001 Mackenzie TSA Analysis Report*, which is summarized in this discussion paper. The objectives of this document are to provide British Columbians with an overview of the Timber Supply Review process and harvest level forecasts for the Mackenzie TSA and to encourage them to provide comments during the 45-day public review period. **Public comments will be accepted until May 28, 2001.**

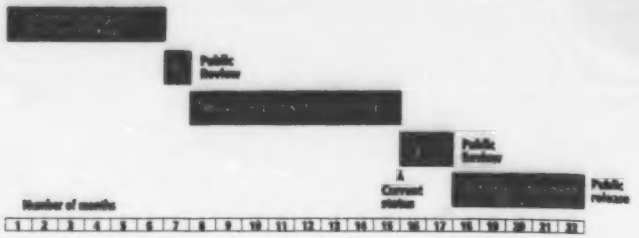
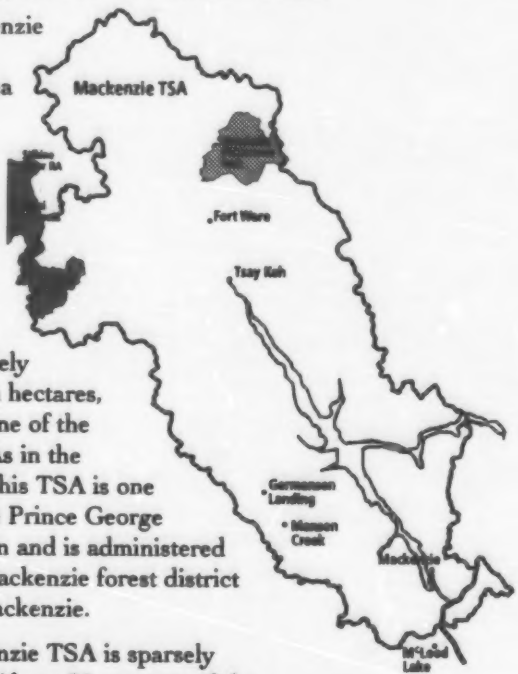


Figure 1. *Review process for the Mackenzie TSA*

Before setting a new AAC, the chief forester will review all relevant reports and public input. The chief forester's determination will be outlined in a rationale statement which, along with the summary of public input, will be available to the public upon release. Following the release of the AAC determination by the chief forester, the minister of forests will apportion the AAC to the various licences and programs.

Description of the TSA

The Mackenzie Timber Supply Area (TSA) is situated in the northeast interior of British Columbia and covers approximately 6.41 million hectares, making it one of the largest TSAs in the province. This TSA is one of six in the Prince George forest region and is administered from the Mackenzie forest district office in Mackenzie.



The Mackenzie TSA is sparsely populated. About 95 per cent of the estimated population of 6,490 (1996 census) live in the community of Mackenzie. Other small

• A timber supply area is an integrated resource management unit established in accordance with section 7 of the Forest Act.

settlements include Germansen Landing and Manson Creek, and the First Nations communities of Fort Ware and Tsay Keh. There is very little dispersed rural settlement within the TSA.

First Nations

Nine First Nations have asserted traditional territory within the Mackenzie TSA. The traditional territories of the Kwadacha and the Tsay Keh Dene First Nations are almost entirely located within the TSA, including their main communities of Fort Ware and Tsay Keh, respectively. The traditional territories of the McLeod Lake, Takla Lake, Nak'azdli, West Moberly and Halfway River First Nations are primarily located outside the TSA, but portions of their traditional territories overlap with the TSA. In addition, small portions of the TSA near Thutade Lake are asserted to be within the traditional territories of the Gitxsan and the Tahltan First Nations.

The McLeod Lake First Nation and the federal and provincial governments have reached an agreement to adhere to Treaty 8. This information will be considered in this timber supply review. When other treaty negotiations or agreements are concluded, they will be considered in future timber supply reviews.

Forestry is the main source of employment for most First Nation members in the Mackenzie TSA. Trapping, fishing and guiding are also important activities. First Nations in the Mackenzie TSA depend heavily on hunting, fishing and gathering natural foods for sustenance. They have expressed concern about increasing road access and associated increased hunting pressures that may reduce game populations.

A preliminary Archaeological Overview Assessment (AOA) has been completed for the Mackenzie TSA. The AOA is expected to be modified this year to provide a better basis for determining areas and sites that may require further assessment. When warranted, archaeological inventories are conducted to identify potential sites, and archaeological impact assessments are carried out to guide operational planning and forest practices to protect cultural heritage resources.

The natural resources

The forests of the Mackenzie TSA provide a wide range of natural resources, including forest products, recreational opportunities, minerals, tourism amenities and a variety of wildlife habitat. As well, trapping and guide-outfitting have a long history in the area.

The Rocky Mountain Trench, with its flat-to-gentle terrain, runs north-south through the centre of the Mackenzie TSA. The rugged Rocky Mountains are in the east and the more rounded Omineca Mountains in the west. Williston Lake – a narrow 360-kilometre-long lake created by the WAC Bennett Dam on the Peace River – is one of the most prominent geographical features in the area. Lodgepole pine, spruce and subalpine fir are the dominant species in the forests of the TSA.

The forests and waterways of the TSA are home to more than 250 species of wildlife, including mule and whitetail deer, grizzly and black bears, moose, woodland caribou, wolves, coyotes, Stone sheep, elk and mountain goats. Furbearers include marten, lynx, beaver, otter and fisher. Fisheries productivity is low, mainly due to the cold climate, but rainbow trout, bull trout, lake trout, arctic grayling, whitefish and kokanee occur in the TSA. Under the Forest Practices Code, there is a process for identifying species at risk that require special management. Currently, there are eight species identified at risk that may be found in the Mackenzie TSA. Additional management practices for wildlife species at risk are contained in the Mackenzie Land and Resource Management Plan.

Recreational use of the forests of the TSA is increasing. The lakes, rivers and mountainous terrain provide a wide range of front- and back-country recreational opportunities, including mountain-biking, hiking, fishing, camping, wildlife viewing, boating, heli-skiing, snowmobiling, and cross-country and downhill skiing.

The productive Crown forest land makes up about 71 per cent of the Mackenzie TSA area, while the current timber harvesting land base represents about 23 per cent of the total TSA area. Protected areas and the Special Resource Management: Wildland zone, where no harvesting is permitted, form about 28 per cent of the productive Crown forest.

Environmental values

Current forest management follows the standards set out by the Forest Practices Code. These standards are designed to maintain a range of biodiversity and wildlife values. In the Mackenzie TSA, almost 70 per cent of the productive Crown forest is not considered available for timber harvesting and will provide for many environmental values. Forested area both inside and outside of the timber harvesting land base will help to maintain critical forest habitats for many species. Forest cover requirements for biodiversity, visual quality, wildlife habitat and water quality were included in the analysis.

Land use planning

In 1994, the Mackenzie Land and Resource Advisory Table was formed to make recommendations on proposed new protected areas. In August 1996, the task of recommending new protected areas was incorporated into a land and resource management planning (LRMP) process for the Mackenzie TSA. The LRMP process provides an opportunity for First Nations, the public, interest groups and government to make recommendations regarding protected areas and future forest management of public lands in the TSA. The LRMP was signed off by the planning table in June 2000 and approved by government in November 2000. Portions of the plan are expected to become legislated requirements through the development of a Higher Level Plan Order later this year. The new protected areas and the Special Resource Management: Wildland zone created by the LRMP have been reflected in the timber supply analysis.

Current allowable annual cut

The current allowable annual cut (AAC) in the Mackenzie TSA is 2.997 million cubic metres, which is apportioned by the Minister of Forests to various licences. This level was set by the chief forester on September 1, 1996, and maintained the previous AAC for predominantly coniferous stands and includes a partition of 50,000 cubic metres for predominantly deciduous stands.

Socio-economic profile

Regional economy

The economy of the Mackenzie TSA is predominantly forest-based. As Figure 2 shows, the forest sector is the leading employer at about 65 per cent of the total labour force. The Mackenzie TSA has the highest dependence on the forest industry of any provincial TSA. The public sector is the second-largest employer, supporting 17 per cent of the total labour force, followed by the travel sector at seven per cent.

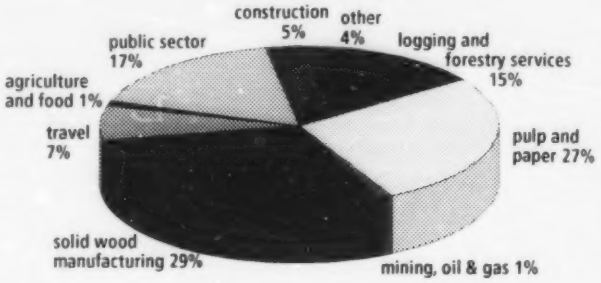


Figure 2. *Mackenzie TSA—Estimates of Employment by Sector, 1996*

Source: 1996 Forest District tables, B.C. Ministry of Finance and Corporate Relations

The forest sector supports numerous other jobs in the area through companies and employees purchasing goods and services from local businesses. Each 100 full-time direct forestry jobs in the Mackenzie TSA are estimated to support another 30 to 51 indirect and induced jobs, depending on the forestry activity (harvesting or timber processing). In comparison, 100 direct jobs in the public sector support an estimated 17 indirect and induced jobs, and 100 tourism jobs support an additional 12 positions.

Table 1 illustrates the potential contribution of the forest industry associated with the Mackenzie TSA timber harvest to both the regional and provincial economies. Figures in this table are based on the average 1997-1999 annual harvest of 2.586 million cubic metres.

	TSA	Provincial
Direct employment (person years)	1,559	2,266
Total employment (person years)	2,124	5,346
Total employment income ($1999 millions per year)	92.3	202.6
Provincial government revenues ($1999 millions per year)	n.a.	105

Table 1. *Summary of local and provincial economic information associated with the average 1997-1999 annual harvest.*

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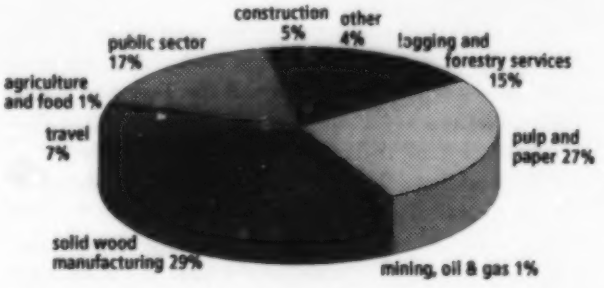

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	TSA	Provincial
Direct employment (person years)	1,229	2,208
Total employment (person years)	2,124	5,346
Total employment income ($1999 millions per year)	92.3	202.8
Provincial government revenues ($1999 millions per year)	n.a.	186

Table 1. *Summary of local and provincial economic information associated with the average 1997-1999 annual harvest.*

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Timber supply forecasts

A timber supply computer model was used to project several possible timber supply forecasts for the next 250 years. One of these forecasts is the base case forecast, which illustrates the effect of current forest management on timber supply. The base case is not an AAC recommendation, but rather it is one of many sources of information the chief forester will consider when setting the AAC.

The base case forecast is presented in this report for discussion and comparison; due to areas of uncertainty, the AAC determined by the chief forester may be greater or less than the level forecast in the base case.

The base case timber supply forecast for the Mackenzie TSA indicates a very stable timber supply. Given current practices and information, the forecasts show that the current AAC of 2.997 million cubic metres could be maintained. The base case forecast also reports that the harvest level for the deciduous component could be maintained at 50,000 cubic metres per year. The analysis also shows that the harvest levels could be higher.

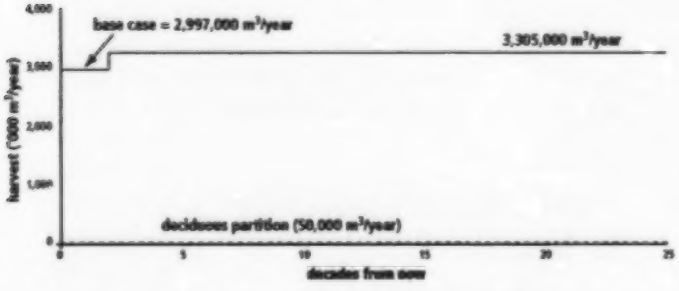

Figure 3. *Base case timber supply forecast for the Mackenzie TSA, 2001*

Compared to the 1995 timber supply analysis, several changes have occurred in the Mackenzie TSA that affect the base case timber supply forecast. These include:

- implementation of the Forest Practices Code;
- reclassification of the operability map, resulting in a 25 per cent increase in the size of the timber harvesting land base;
- establishment of interim landscape units and biodiversity emphasis options;
- designation of scenic corridors;
- establishment of the protected areas and the Special Resource Management: Wildland zone.

The base case timber supply forecast was generated on a set of harvest-flow assumptions, including starting at the current AAC. Two alternative harvest flows were also examined. Under the first alternative, a maximum even-flow harvest level at 3,305,000 cubic metres per year could be achieved. For the second alternative, an increased harvest level of 3,596,836 cubic metres per year could be sustained for five decades before declining to the long term harvest level.

Sensitivity analyses: examining uncertainty

Because forests are complex and constantly changing, timber supply analysts assess how their timber supply forecast results might be affected by uncertainties in the inventory information and management practices. These uncertainties are generally examined through what are called sensitivity analyses, which the chief forester will consider in determining an AAC. The sensitivity analyses are useful for assessing how any changes in information or uncertainties and risks might affect timber supply.

In the Mackenzie TSA, a number of sensitivity analyses were conducted to examine the stability of the timber supply. Three sensitivity analyses are described below. For a complete listing of sensitivity analyses, please refer to the *2001 Mackenzie TSA Analysis Report.*

Uncertainty about estimates of timber volumes in existing stands

Timber volume estimates for existing stands are subject to uncertainties in the forest inventory. An inventory audit showed that volumes may be overestimated for the Mackenzie TSA. A sensitivity analysis was performed to test the potential effect on timber supply of this uncertainty in volume estimates.

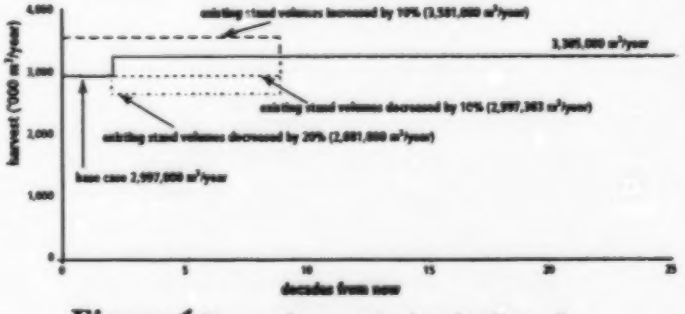

Figure 4 *Harvest forecast showing the effects of increased and decreased volume estimates for existing unmanaged stands.*

Figure 4 shows that if stand volumes are decreased by 10 per cent, the initial harvest level can be maintained for nine decades before increasing to the long-term harvest level. If existing volumes are decreased by 20 per cent, the initial harvest level can only be maintained for two decades before declining by 10.5 per cent. If stand volumes are increased by 10 per cent, the initial harvest level can be increased by 19.5 per cent and maintained for nine decades before declining to the long-term harvest level.

Uncertainty in harvesting marginal stands

For the timber supply analysis, marginal stands were identified as those with low volume and poorer quality. As well, due to the potential difficulty in accessing timber in the northern parts of the TSA, a near-haul zone (southern TSA) and far-haul zone (northern TSA) were defined. In the base case, only marginal stands in the near-haul zone were included in the timber harvesting land base. As Figure 5 shows, including the marginal stands in the far-haul zone increases the initial harvest level by 24 per cent. If the marginal stands in the near-haul zone are excluded, the mid- and long-term harvest levels would be reduced by four per cent.

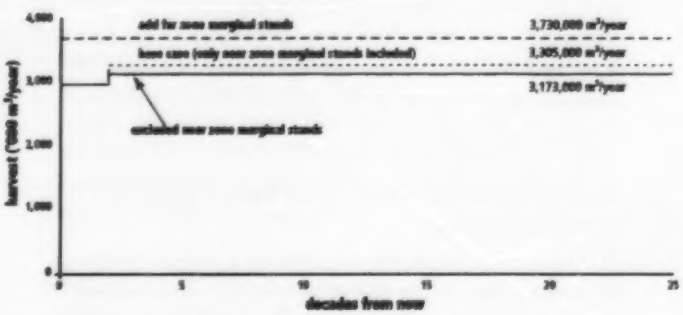

Figure 5 *Harvest forecast showing the impact of marginal stands.*

Uncertainty about the size of the operable land base

In the previous timber supply review, inoperable areas were defined by limiting features, such as difficult or steep terrain and economic factors, and resulted in a reduction of 856,000 hectares. For this analysis, limiting terrain was the only factor used, and resulted in a smaller reduction. This resulted in a 25 per cent increase in the timber harvesting land base. A sensitivity analysis tested the impact of using the same timber harvesting land base as in the previous analysis. Figure 6 shows that if the timber harvesting land base is reduced to the previous estimate, the initial harvest could be maintained for two decades before decreasing by 18 per cent.

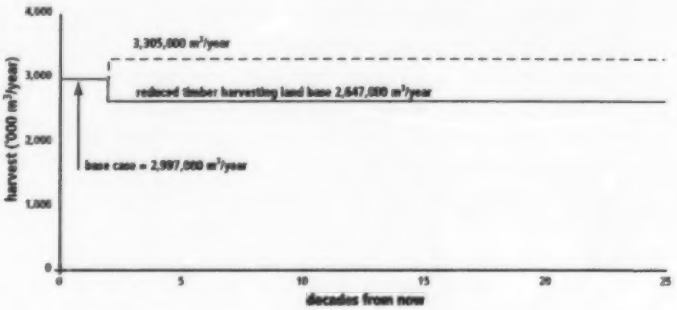

Figure 6

Harvest forecast showing the impact of reducing the timber harvesting land base to previous estimates.

Implications of changes in the AAC

Community Implications

The implication of changes in the AAC for local communities is an important consideration in the Timber Supply Review. The base case harvest forecast for the Mackenzie TSA suggests the current AAC of 2.997 million cubic metres can be maintained indefinitely. If the AAC is maintained at the current level, and fully harvested, no employment or other industry-related changes would occur in the Mackenzie TSA forestry sector as a result of the Timber Supply Review.

Your input is needed

Establishing the AAC is an important decision that requires well-informed and thoughtful public input. Feedback is welcomed on any aspect of this discussion paper, the 2001 Mackenzie TSA Analysis Report and other issues related to the timber supply in the Mackenzie TSA. Forest Service staff would be pleased to answer questions or discuss concerns that would help you prepare your response. Please send your comments to the forest district manager at the address below. **Your comments will be accepted until May 28, 2001.**

You may identify yourself on the response if you wish. If you do, you are reminded that responses will be subject to the Freedom of Information and Protection of Privacy Act and may be made public. If the responses are made public, personal identifiers will be removed before the responses are released.

A summary of public comments will be attached to the AAC rationale and will be available from the district office when the chief forester's AAC determination is announced.

For more information contact and/or mail your comments to:

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Bag 5000
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Prince George, BC
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Phone: (250)565-6100, Fax: (250)565-6671
Or electronic mail to
Anne.Anderson@gems1.gov.bc.ca

Visit our website at http://www.for.gov.bc.ca/tsb

Background Information Regarding TSR

The Chief Forester's Responsibility

Determining the allowable annual cuts (AACs) for public forest lands in British Columbia is the responsibility of the province's chief forester. In this lengthy and complex process, the chief forester considers technical reports, analyses and public input, as well as government's social and economic objectives.

This responsibility is required by legislation in the Forest Act, Section 8. It states that the chief forester shall specifically consider the following factors:

1. The rate of timber production that may be sustained from the area, taking into account:
   - the composition of the forest and its expected rate of growth
   - the time that it will take the forest to become re-established
   - silviculture treatments, including reforestation
   - standards of timber utilization
   - constraints on the amount of timber that may be produced due to use of the forest for other purposes.
2. The short- and long-term implications to the province of alternative rates of timber harvesting from the area.
3. The nature, production capabilities and timber requirements of established and proposed processing facilities.
4. The economic and social objectives of the Crown for the area, region and province—as expressed by the minister of forests.
5. Abnormal insect or disease infestations, and major salvage programs planned for the timber on the area.

Some of these factors can be measured and analyzed—others cannot. Ultimately, the chief forester's determination is an independent professional judgment based on the best available information. By law, the chief forester is independent of the political process, and is not directed by the minister of forests when determining AACs. In these determinations, the chief forester considers relevant information from all sources.